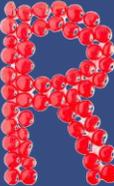


MATERNAL OBESITY

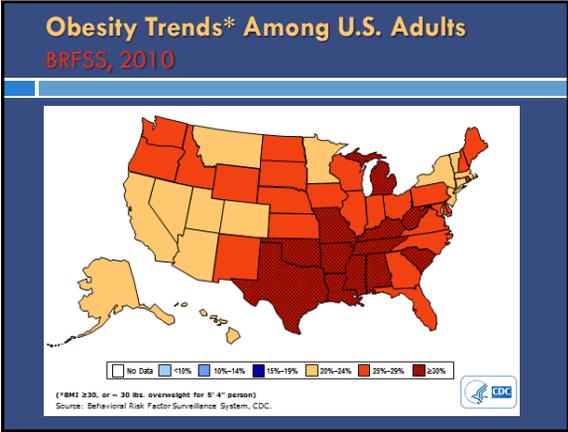
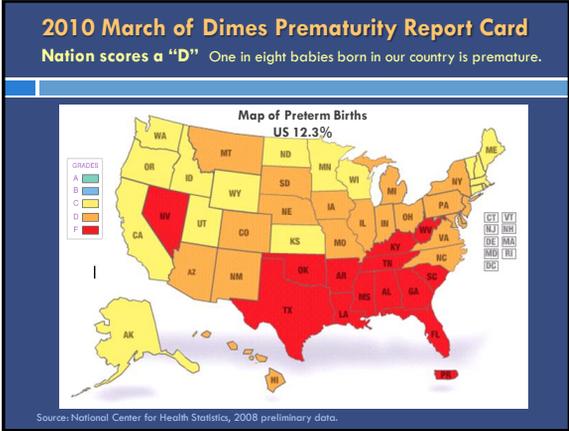
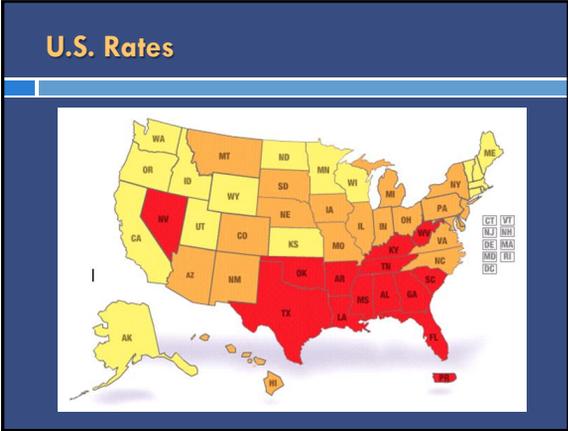
Interconception & Preconception Health Summit
November 1, 2011

Presented by:
Denise C. Gee, MPH, RD
PHFE WIC

The 4 R's of Maternal Obesity



- Rates
- Risks
- Recommendations
- Resources



Obesity



Obesity is the fastest-growing health problem in the US.

Definition of Obesity: excess adipose (fat) tissue

- Can be measured by Body Mass Index (BMI)
- BMI is a reliable, more accurate measure of total body fat compared with body weight alone.
- Body Mass Index (BMI) formula:
A measure of an adult's weight in relation to his or her height, specifically the adult's weight in pounds divided by height in inches squared multiplied by 703, or:
$$BMI = \left(\frac{\text{Weight in Pounds}}{(\text{Height in inches})^2} \right) \times 703$$

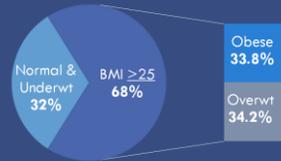
Weight Status based on BMI

Classifications for BMI	
	BMI (kg/m ²)
Underweight	<18.5
Normal weight	18.5-24.9
Overweight	25-29.9
Obesity (Class 1)	30-34.9
Obesity (Class 2)	35-39.9
Extreme Obesity (Class 3)	≥40

- National Heart, Lung and Blood Institute (NHLBI), 1998
- To estimate BMI, multiply the individual's weight (in pounds) by 703, then divide by the height (in inches) squared.

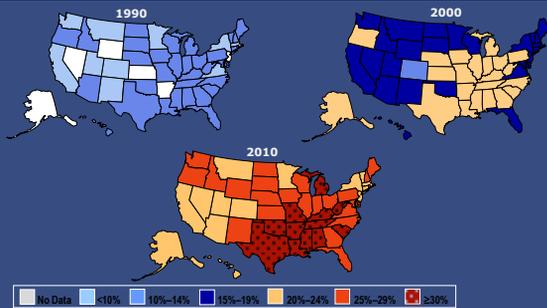
Obesity Rates

- Over 2/3 of adults in the US are overweight or obese*
- Over 1/3 are obese*



*According to data from the National Health and Nutrition Examination Survey (NHANES) 2003-2006 and 2007-2008.
 Source: Flegal, KM et al. Prevalence and Trends in Obesity Among US Adults, 1999-2008. *Journal of the American Medical Association*. 2010; 235-241.

Obesity Trends* Among U.S. Adults BRFSS, 1990, 2000, 2010



Source: Behavioral Risk Factor Surveillance System, CDC (*BMI ≥30, or about 30 lbs. overweight for 5'4" person)

Obesity Trends Among U.S. Adults Between 1990 and 2010

- In 1990...
- 10 states had a prevalence of obesity less than 10%
 - No state had a prevalence equal to or greater than 15%
- By 2000...
- No state had a prevalence of obesity less than 10%
 - 23 states had a prevalence between 20-24%
 - No state had a prevalence equal to or greater than 25%
- In 2010...
- No state had a prevalence of obesity less than 20%
 - 36 states had a prevalence equal to or greater than 25%
 - 12 states had a prevalence equal to or greater than 30%

*Among states participating in the Behavioral Risk Factor Surveillance System (BRFSS)

Obesity Trends Among Women

Women's weight at varying stages of life:

- I. BEFORE pregnancy
- II. DURING pregnancy
- III. AFTER pregnancy (postpartum)



Obesity Trends Among Women

Women's weight at varying stages of life:

- I. **BEFORE** pregnancy
- II. DURING pregnancy
- III. AFTER pregnancy (postpartum)

Obesity Trends Among Non-Pregnant Women 12 to 44 Years of Age

- The prevalence of obesity among women 12 to 44 years of age has more than doubled since 1976, with continued increases in overweight women.



Source: Rasmussen, KM and Yaktine, AL, Ed. Weight Gain During Pregnancy: Reexamining the Guidelines (2009) NHANES Data. Data presented as percents.

Trends of Obesity Classes Among Non-Pregnant Women 12 to 44 Years of Age

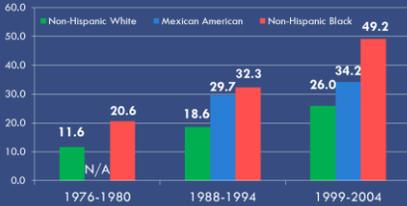
- The prevalence of extreme obesity has increased dramatically.



Source: Rasmussen, KM and Yaktine, AL, Ed. Weight Gain During Pregnancy: Reexamining the Guidelines (2009) NHANES Data. Data presented as percents.

Obesity (BMI 30+) Trends Among Non-Pregnant Women 12 to 44 Years of Age by Race

- Non-Hispanic Black women were significantly more obese than non-Hispanic White women
- Mexican American women were more likely to be obese than non-Hispanic White women



Source: Rasmussen, KM and Yaktine, AL, Ed. Weight Gain During Pregnancy: Reexamining the Guidelines (2009) NHANES Data. Data presented as percents.

Non-Pregnant and Before Pregnancy Weight Status Among Women

Summary:

- Growing population of overweight and obese women, therefore, more women enter pregnancy overweight or obese.
- 1/5 of American women are obese at the start of pregnancy.



- Overweight and obesity increased across multiple races/ethnicities, but higher in minority women.

Obesity Trends Among Women

Women's weight at varying stages of life:

- I. BEFORE pregnancy
- II. **DURING pregnancy**
- III. AFTER pregnancy (postpartum)

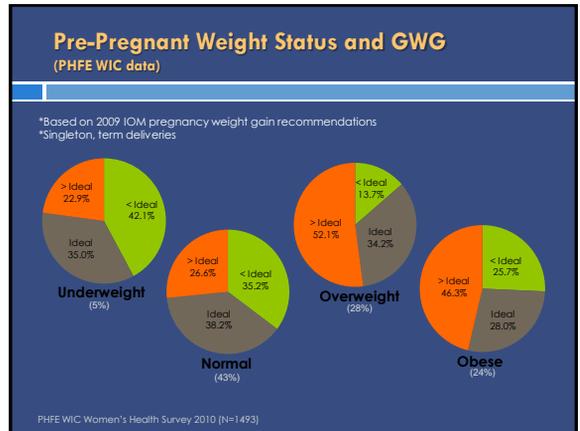
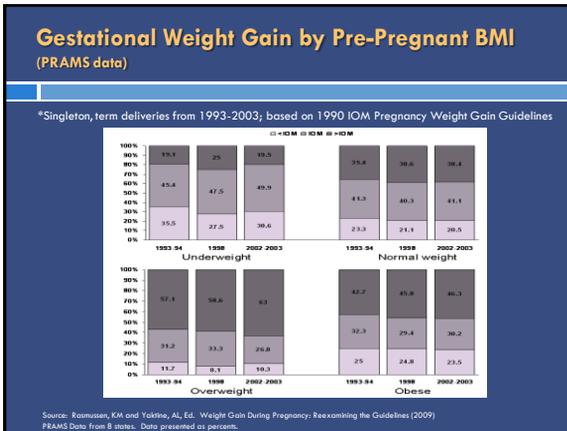
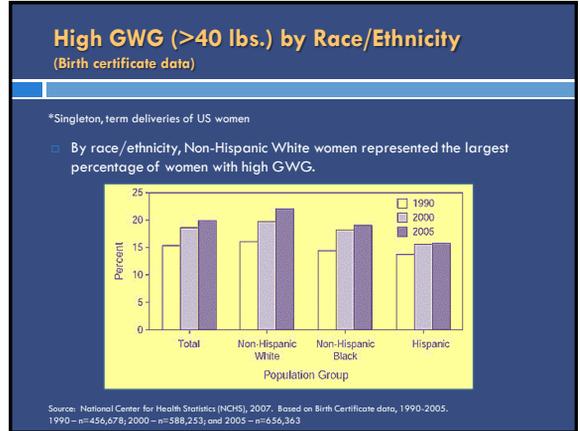
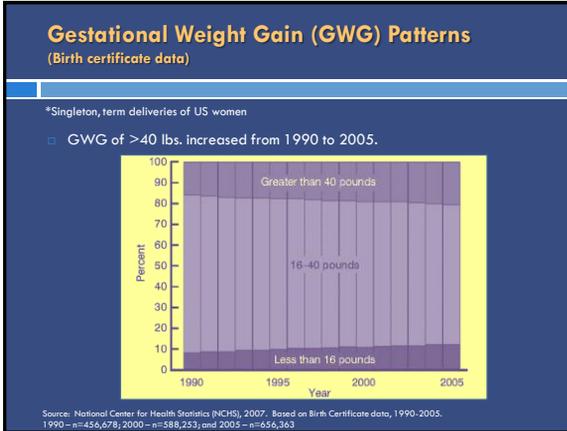
2009 IOM Pregnancy Weight Gain Guidelines

TABLE 1 NEW RECOMMENDATIONS FOR TOTAL AND RATE OF WEIGHT GAIN DURING PREGNANCY, BY PREPREGNANCY BMI

Prepregnancy BMI	BMI* (kg/m ²) (WHO)	Total Weight Gain Range (lbs)	Rates of Weight Gain* 2nd and 3rd Trimester (Mean Range in lbs/wk)
Underweight	<18.5	28-40	1 (1-1.3)
Normal weight	18.5-24.9	25-35	1 (0.8-1)
Overweight	25.0-29.9	15-25	0.6 (0.5-0.7)
Obese (includes all classes)	≥30.0	11-20	0.5 (0.4-0.6)

* To calculate BMI go to www.nhlbiupport.com/bmi/

* Calculations assume a 0.5-2 kg (1.1-4.4 lbs) weight gain in the first trimester (based on Siego-Riz et al., 1994; Abrams et al., 1995; Carmichael et al., 1997)



GWG Among Pregnant Women

Summary:

- Women are gaining more weight during their pregnancies than is recommended
- Overweight and obese pregnant women have the highest rate of excessive GWG

Obesity Trends Among Women

Women's weight at varying stages of life:

- BEFORE pregnancy
- DURING pregnancy
- AFTER pregnancy (postpartum)**

Postpartum Weight Retention (PPWR) by Pre-Pregnant Weight Status at >24 Weeks Postpartum

- Higher GWG is associated with greater PPWR.
- Black women retained more weight than White or Hispanic women.

Source: Rasmussen, KM and Yaktine, AL, Ed. Weight Gain During Pregnancy: Reexamining the Guidelines (2009) PNSS data.

Postpartum Weight Retention (PPWR) of Pre-Pregnant Obese Women

- Obese women who gained within or below the IOM recommended weight range maintained a postpartum weight BELOW their pre-pregnant weight.

Source: Rasmussen, KM and Yaktine, AL, Ed. Weight Gain During Pregnancy: Reexamining the Guidelines (2009) IFPS Infant Feeding Practices Study II 2005-2006 Data.

PPWR Among Pregnant Women

Summary:

- GWG will influence PPWR --- high GWG → increased PPWR
- Women are likely to become pregnant again without taking off all of the weight gained in their previous pregnancy
- PPWR will lead to obesity or worsen a women's weight status

Obesity and Disease Risks

- Obesity is a risk factor for many chronic conditions and health problems:
 - Diabetes
 - Hypertension
 - High cholesterol
 - Stroke
 - Heart disease
 - Osteoarthritis
 - Menstrual irregularities
 - Certain cancers (kidney, endometrial, colorectal, gallbladder, thyroid)
 - Sleep apnea
 - Non-alcoholic fatty liver disease
 - Gallbladder disease

Obesity and Risks of Pregnancy Complications

- Obesity increases the risk of pregnancy complications which can include:
 - Infertility
 - Gestational diabetes
 - Pre-eclampsia
 - Miscarriage/fetal death
 - Prolonged labor
 - Caesarean delivery

Risks to Infant and Children

- Infants and children are adversely affected by maternal obesity
 - Shoulder dystocia
 - Macrosomia
 - Possible birth defects
 - Preterm birth
 - Childhood obesity

The 4 R's of Maternal Obesity



- Rates
- Risks
- Recommendations
- Resources

Recommendations

- Women should work towards achieving and/or maintaining a healthy weight preconceptionally/interconceptionally
- Discuss the importance of returning to pre-pregnant weight, then healthy weight (if overweight/obese)
- Requires a combination of a healthy diet, physical activity and behavior modification



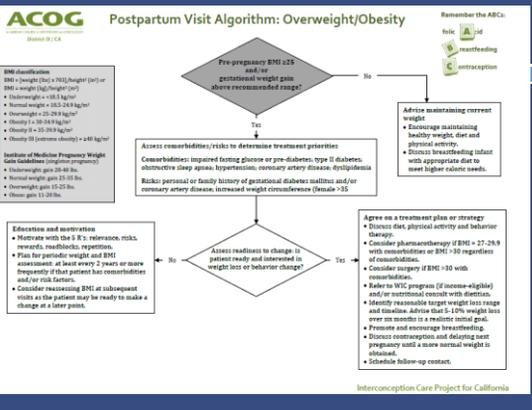
Recommendations

- Encourage and support (exclusive) breastfeeding
- Need to break the cycle of obesity by preventing/correcting maternal obesity to avoid childhood obesity



Recommendations for the Healthcare Provider

- Talk with women about their weight and weight status
- If a woman is overweight or obese, she needs to be aware of it and her risks
 - Calculate her BMI
 - Share what is a healthy weight range
- Monitor weight regularly
- If pregnant, discuss recommended weight gain range
 - Refer to WIC (if eligible)



Resources

ACOG's
Healthy Weight:
After Pregnancy

www.nhlbi.nih.gov
www.cdc.gov/obesity/

Case Scenarios

- 1) 8 week postpartum, breastfeeding mother is highly motivated to lose weight. She began her pregnancy with a BMI of 30 and gained 30 lbs. during her pregnancy. Receives Medi-Cal.
- 2) 6 week postpartum mother gained 45 lbs. during her pregnancy. She had a pre-pregnancy BMI of 24, was gestational diabetic and has ongoing health care coverage (insurance).

*How would you serve these moms?
What additional information would you obtain?
What follow-up would you prescribe?*

Contact Info

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